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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/054,881	01/25/2002	Naoki Imahori	2002-0063A	5452

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EXAMINER

YAM, STEPHEN K

ART UNIT	PAPER NUMBER
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2878

DATE MAILED: 11/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/054,881

Applicant(s)

IMAHORI ET AL.

Examiner

Stephen Yam

Art Unit

2878

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 August 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 4-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 4,6-9 and 11-13 is/are rejected.
- 7) ☒ Claim(s) 5 and 10 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

This action is in response to Amendments and remarks filed on August 7, 2003. Claims 4-13 are currently pending.

Claim Objections

1. Claims 4 and 9 are objected to because of the following informalities:

In Claims 4 and 9, line 4, "said sensor" lacks proper antecedent basis.

In Claim 4, lines 7-8, "a first receiving means" and "a second receiving means" lacks proper antecedent basis, as it is unclear whether the first and second receiving means are related to the receiving means defined in the plurality of sensor sets.

In Claim 9, lines 7-8, "a first receiver" and "a second receiver" lacks proper antecedent basis, as it is unclear whether the first and second receiver are related to the receivers defined in the plurality of sensor sets.

In Claim 9, line 9, "a" should be added before "data exchanger".

Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 4, 6-9, and 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Denton US Patent No. 4,520,262 in view of Thomson et al. US Patent No. 5,880,954.

Regarding Claims 4, 6, 8, 9, 11, and 13, Denton teaches (see Fig. 1 and 3) a sensor comprising a plurality of sensor sets (1, 2), each of said sensor sets comprising a transmission means (1) for transmitting light and a receiving means (2) for receiving light located to oppose each other across an object detection area so that said sensor is operable to determine the presence or absence of an object within the object detection area depending on whether light emitted from each transmission means is received by an opposing receiving means (see Fig. 1), data acquisition means (15) for acquiring light acceptance data sent from a first receiving means (top (2) sensor) and light acceptance data sent from a second receiving means (second (2) sensor from the top). Regarding Claims 6 and 11, Denton also teaches (see Fig. 1) said transmission means operable to transmit light beams (1). Regarding Claims 8 and 13, Denton teaches said data acquisition means is operable to acquire light acceptance data from each of said receiving means (see Fig. 3). Denton does not teach data exchange means for exchanging the light acceptance data from said first receiving means with the light acceptance data from said second receiving means, such that said data acquisition means is operable to acquire predetermined light acceptance data based on light emitted from one of said transmission means and that is received by an opposing receiving means, wherein said data exchange means is operable to exchange light acceptance data when said data acquisition means fails to acquire the predetermined light acceptance data, provided that one of said transmission means emits light in the absence of an object within the object detection area. Thomson et al. teach (see Fig. 4A) a sensor comprising a plurality of sensor sets (340) (see Col. 12, line 55 to Col. 13, line 5), each sensor set operable to

determine the presence or absence of an object within the object detection area (see Col. 25, lines 27-31), data acquisition means (200) for acquiring data sent from a first receiving means (top (340) sensor) and light acceptance data sent from a second receiving means (second (340) sensor), and exchanging the light acceptance data from said first receiving means with the light acceptance data from said second receiving means (to correct an improperly installed sensor- see Col. 13, lines 5-9)), such that said data acquisition means is operable to acquire predetermined light acceptance data based on light emitted from one of said transmission means and that is received by an opposing receiving means, wherein said data exchange means is operable to exchange light acceptance data when said data acquisition means fails to acquire the predetermined acceptance data (see Col. 13, lines 5-13). Thomson et al. also teach detecting an improperly installed sensor where the sensors or connections are mismatched (see Col. 13, lines 7-9), therefore requiring a technician to correct the coupling of the sensors, so inherently, if there is an improperly switched connection (wire terminal mix-up), at least two sensors are improperly connected and are switched back to the correct orientation. Further, it is well known in the art to use an electronic switchbox for switching signals from different data-carrying cables instead of manually exchanging the cables by hand. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use an electronic switchbox as a data exchange means for exchanging light acceptance data upon a technician's observation of out-of-sequence indicator lights, to correct an improperly installed sensor, as taught by Thomson et al., in the device of Denton, to increase operator safety by detecting and correcting improperly installed sensors, as taught by Thomson et al. (see Col. 13, lines 59-64 and Col. 25, lines 31-33), without requiring the manual task of detaching and re-attaching cables, since it has been held that broadly

providing a mechanical or automatic means to replace manual activity which has accomplished the same result involves only routine skill in the art. *In re Venner*, 120 USPQ 192.

Regarding Claims 7 and 12, Denton in view of Thomson et al. teach the device in Claims 4 and 9, according to the appropriate paragraph above. Denton does not teach the plurality of sensor sets comprising only two sensor sets. It is design choice as to how many sensor sets are used, depending on the desired detection area and desired accuracy. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use only two sensor sets in the device of Denton in view of Thomson et al., to provide sensor detection in a defined small area.

Allowable Subject Matter

4. Claims 5 and 10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

5. The following is a statement of reasons for the indication of allowable subject matter: The invention as claimed, specifically in combination with a plurality of light sensor sets each having a light transmitter and a light receiver, wherein each light transmitter individually outputs light, and output signals from two sensors are exchanged if a sensor that outputs the greatest signal is not the sensor associated with an associated light transmitter, is not disclosed or made obvious by the prior art of record.

Response to Arguments

6. Applicant's arguments filed August 7, 2003 have been fully considered but they are not persuasive.

7. Applicant's arguments with respect to claims 4-12 have been considered but are moot in view of the new ground(s) of rejection.

Regarding Applicant's arguments on the Thomson reference, Applicant argues that it would not have been obvious to use an electronic switch box in place of the manual task of detaching and re-attaching the data-carrying cables by a technician according to the indicator lights. Examiner asserts that providing a mechanical or automatic means to replace manual activity which has accomplished the same result involves only routine skill in the art. *In re Venner*, 120 USPQ 192. As an electronic switch box accomplishes the same task as the manual labor of switching cables in Thomson, it would have been obvious to one of ordinary skill in the art to provide a common electronic switch box and associated circuitry to automatically perform the task of re-routing the data from the receivers. Furthermore, Examiner cites Chang US Patent No. 5,721,844 as an example of an electronic switch box to switch signals between multiple devices to replace the manual task of detaching and re-attaching cables.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen Yam whose telephone number is (703)306-3441. The examiner can normally be reached on Monday-Friday 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on (703)308-4852. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

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